

CLAIMS

1. A method for preparing a pasteurized or sterilized product, wherein the product in liquid form to be pasteurized or sterilized is introduced into a heated mixing chamber and is atomized while admixing steam, so that microorganisms are killed.
- 5 2. A method according to claim 1, wherein the atomized pasteurized or sterilized product is dried.
3. A method according to claim 2, wherein drying takes place by spray drying or steam drying.
4. A method according to claim 3, wherein the supplied steam or part thereof, after leaving the drying chamber, is superheated again and
10 returned to the drying chamber,.
5. A method according to any one of claims 1-4, wherein the product comprises a heat-sensitive substance, and wherein the pasteurization or sterilization takes places for a time sufficiently short to substantially
15 prevent inactivation of one or more heat-sensitive substances.
6. A method according to claim 5, wherein the product comprises one or more peptides, proteins, fats, vitamins, antioxidants, minerals, hormones, steroids, polysaccharides, vegetable oils and/or sugars.
7. A method according to any one of claims 1-6, wherein the average
20 residence time of the mixture of the product and steam in the heated space ranges between 0.2 and 20 msec, preferably between 1 and 10 msec.
8. A method according to any one of claims 1-7, wherein the product is obtained through an outflow opening having a size of less than 6 mm, preferably less than 5 mm.
- 25 9. A method according to any one of claims 1-8, wherein the weight ratio between the product in liquid form and steam ranges between 1.6 and 10, and preferably between 1.75 and 7.

10. A method according to any one of claims 1-9, wherein the solid content in the product is 0.7-6.5 kg per kg steam.
11. A method according to any one of claims 1-10, wherein the temperature in the mixing chamber ranges between 120 and 250 °C.
- 5 12. A method according to any one of claims 1-11, wherein steam is introduced into the mixing chamber via a spray nozzle, and wherein the steam pressure for the spray nozzle is 3-20 bar, preferably 5-15 bar.
13. A method according to any one of claims 1-12, wherein the product in liquid form has a solid content of more than 45 wt.%, preferably at least 53
10 wt.%.
14. A method according to any one of claims 1-13, wherein the product is a stable emulsion.
15. A method according to any one of claims 2-14, wherein the dried product contains primary powder particles having an average diameter of
15 10-60 µm.
16. A method according to any one of claims 2-15, wherein the dried product contains an agglomerate of primary powder particles.
17. A method according to claim 16, wherein the product is dried using at least two nozzles, the outflow openings of which are arranged such that the
20 outgoing sprays comprising product and steam contact each other.
18. A method according to claim 16 or 17, wherein non-agglomerated primary particles are recirculated to the drying chamber via at least one of the spray nozzles.
19. A method according to any one of claims 1-18, wherein said
25 pasteurization or sterilization is the only pasteurization or sterilization step in the preparation.
20. A method according to any one of the preceding claims, wherein a decimal reduction of at least 2 is reached.
21. A product obtainable according to a method according to any one of
30 the preceding claims.

22. A product according to claim 21, wherein the aerobic germ count per gram of dried product at 30 °C in at least four of five representative samples is less than 10,000, and preferably less than 5,000, and wherein the aerobic germ count per gram of product at 55 °C in at least four of said five samples
5 is less than 1,000, and preferably less than 500.
23. The use of a nozzle with a mixing chamber for pasteurizing or sterilizing a product in liquid form.
24. The use according to claim 23, wherein the product leaves the mixing chamber through an outflow opening having a size of less than 6 mm,
10 preferably less than 5 mm.